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USE OF MANGROVES FOR AQUACULTURE: VIETNAM

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OVERVIEW

Mangrove Areas

Vietnam has a coastal line of 3600 km with a large wetland (tidal area) area of 600,000 ha (according to the survey statistics of the Institute of Planning and Economics under the Ministry of Fisheries), in which mangrove areas occupy a big part. Before the war, there were about 400,000 ha of mangroves in Vietnam; the largest area located in the South of Vietnam (Mekong River Delta) mainly in Tra Vinh, Soc Trang and Minh Hai. Mangrove forest serves as buffer zone or as biological filter layer. Mangrove is not only a very important ecosystem for forestry and agriculture but plays a decisive role in exploitation, aquaculture and biodiversity yield. Mangrove forests of Vietnam, especially in the South of Vietnam has been the main source of livelihood for farmers and fishermen, for a long time, which until now still occupy a large proportion of the whole country.

During the wartime, chemical war destroyed the mangrove forests in Vietnam by 50%. Before the war, in order to develop forestry, agriculture and fisheries, a large area of mangrove has been used therefore up to now the forest extent has greatly diminished to 252,000 ha distributed in the four areas:

- Northeast coastal area from Quang Ninh to Do Son – Hai Phong, with 46 mangroves
- Bac Bo Delta Coastal Area, from Do Son Cape to north Lach Truong Cape, with 13 mangroves.
- Central Coast, from Lach Truong to Vung Tau Cape, with 28 mangroves.
- South Coast, from Vung Tau Cape to Ha Tien, with 34 mangroves

Role of Mangrove in Fisheries Resources

Mangroves play an important role in the nutritional cycles of aquatic species, serving as source of organic matters to increase the yield of the coastal areas; and as the place for reproduction growth and a permanent shelter for many valuable sea products such as fish, shrimps, crabs, and mollusks. Mangroves provide food both directly (humus, fallen leaves and fruits) and indirectly (through humus-eating animals as preys) for big fishes and some other species of predators. Therefore, the composition of the fauna in the mangrove areas is very abundant and diversified.

In the mangrove areas, fry of shrimps, crabs, and fish are very abundant. Comparing the composition of fishes and shrimps in the mangrove area, the sandy coastal areas with the areas with sea grass, the quantity of larvae in the first type of land is higher in all seasons of the year. Thus, mangroves are the main breeding ground for the larvae of shrimps, crabs and some other species of fish and oysters. Mangroves also provide the seed source for aquaculture because the larvae and post-larvae of many species, such as banana shrimps, crabs, oysters, fish, etc. live in mangrove areas.

The tidal flats with mangroves are also the habitat of many species of water birds and migrant birds. The main food of these birds is certain small marine creatures (fish, shrimps, small crabs, shells, etc.). The birds excrete a considerable amount of feces, which facilitate the trees' growth and increase the amount of organic matters as feed for aquatic creatures and benthos attracting many species to the area to search for food, forming a diversified ecosystem rich in species.

MANGROVE DEVELOPMENT AND PROTECTION

Reasons for deterioration of mangroves include:

- Overexploitation
- Conversion of mangrove areas to fisheries aquaculture
- Conversion of mangrove areas to agricultural production
- Mining activities
- Urbanization
- Construction of dykes, dams and roads
- Lack of measures and means of education and propagation

The policy on mangroves protection and development

In order to maintain harmony between short-term and long-term benefits, exploitation and protection, various sectors (agriculture, forestry and fisheries) and the Vietnamese Government set up legislation framework, programs, and national projects with a view to protect, restore and rehabilitate mangroves such as Decrees, Circulars, Directives, policies of land and forest allocations; programs of restoring and rehabilitating protective forests in three provinces (Minh Hai, Soc Trang and Tra Vinh); the project on Forest Protected Area of Trang Chim – Minh Hai, Natural Forest (Cham Forest – Ca Mau); Projects on mangroves reforestation in Thai Binh, Nghe An, Ha Tinh; a number of research projects on ecosystem, biology and reforestation technology, social-economics in mangroves areas; and researches on the relationship between shrimp and mangroves. The later is done in order to formulate an appropriate model for mangrove – friendly shrimp culture. Research Centers on Mangrove Ecosystem have been established in Hanoi, Minh Hai and some provinces.

In defining the long-term strategy for sustainably conserving and utilizing the mangrove forests, the following strategies have been implemented by the Government:

- Restoration of the protective forests, investing in new forests and reforestation of protective forests and destroyed forests.
- Establishment of legislations on forest protection as well as management regulations for various ecosystems.
- Establishment of a sustainable utilization-management model based on the relationship between mangrove forests and aquaculture and agriculture as well as the relationship between mangrove forests and near shore fisheries.
- Organization of training, extension and information systems so as to raise the knowledge in the community.
- Establishment of a community based management system in the mangrove areas and socializing the protection activities.

- Setting up of scientific researches on forest recreation and development such as basic researches on trees, species and researches on technology of reforestation, aquaculture, exploitation, environment management and treatment, anti-pollution; etc.
- Establishment Protected Areas for birds, trees and fisheries aquatic resources.

LAWS, RULES, REGULATIONS ON MANGROVES

Legal framework for protection and development of mangroves and fisheries resources

- The land law (1993, amended in 1999)
- Law on the Forest Protection and Development (1992)
- Law on Environmental Protection (1994)
- Ordinance on Fisheries Resources Protection and Development (1989), which has been updated into the Fisheries Law which is expected to be approved by the National Assembly in the late of 2003.
- The Decree 327 (1992 – 1993) and Decree 556 (1996 – 1997) of the Prime Minister for Regreening of Bare Lands
- The Decree 776 providing infrastructure and planning support for allocating land for holdings establishment adjoining the coastal full protection zones.
- 24/10/1984- Decision 975 QPN 7/84 on the environment protection
- Decision 246/HDBT dated 29/9/1985 on natural resources and environment protection
- Article 5 of Law on Forest Protection stimulating the establishment of protected zones.
- Directive 53/CT dated 24/9/1990 on the establishment of forests growing and protection including coastal areas and river mouth areas. Based on this, the Ministry of Forestry (now the Ministry of Agriculture and Rural Development) had issued notice 413/QD dated 18 /9/1992 on the program of growing 6000 ha of forests along the coastal line of Minh Hai.
- 4/1987, the Government issued notice on wetlands utilization in the whole country and announced 8 protected areas within the wetlands with the total area of 20,671 ha, of which Tram Chim has 9000 ha, Dat Mui 7547 ha and Vo Doi 3945 ha.
- Directive 01/1998/CT of the Prime Minister banning destructive fishing instruments, including use of toxic chemicals, electric impulses, and dynamite.
- Some provincial directives such as directive 19/CTUB dated 23/4/1984 on the implementation of the Decision 184/HDBT on the protection and declining use of mangrove forests.

Governmental Commitment on International Conventions, Treaties

- 20/1/1989, the Vietnamese Government officially became the member party of Ramsar Convention and put the Xuan Thuy Mangrove Island in the Ramsar list.
- Biodiversity Convention
- Convention on Climate Changes
- CITES Convention
- United Nations Convention on the Law of the Sea (UNCLOS)

Government Strategies

- The National Plan for Environment and Sustainable Development, 1991 – 2000
- The national Biodiversity Action Plan (1995)
- The Tropical Forest Action Plan (1992)
- The National Program Number 327 for Implementation of the Decree 327.
- The National Program Number 556 for Implementation of the Decree 556.
- The National Program for Five Million Hectare Reforestation
- The National Program on Offshore Fishing (1997)
- The National Program on Aquaculture (1999)

Policy Recommendations

- The Government should enact and implement certain rules to protect the environment and conserve the mangrove genetic resources (in laws, there should be certain articles stipulating the conservation of mangroves). these laws and rules should be in agreement with the international rules and regulations.
- Simultaneously, certain guidelines should be provided for the exploitation and utilization of mangrove resources.
- The government should enforce land use planning and development control; sustainable use of renewable resources and non-renewable resources; prevention of pollution, conservation of mangrove genetic resources, especially conservation of endangered species.
- These regulations and sanctions must be effectively enforced; those that do not comply must be punished.
- Investment should be made in family planning and improvement of the cultural educational background of coastal inhabitants so that they can be fully aware of the mangroves' role in the country's development.

